

E Commerce

Definition:

- 1. Electronic commerce or ecommerce is a term for any type of business, or commercial transaction that involves the transfer of information across the Internet. It covers a range of different types of businesses, from consumer based retail sites, through auction or music sites, to business exchanges trading goods and services between corporations. It is currently one of the most important aspects of the Internet to emerge.**
- 2. E-Commerce or Electronics Commerce is a methodology of modern business, which addresses the need of business organizations, vendors and customers to reduce cost and improve the quality of goods and services while increasing the speed of delivery.**
- 3. Ecommerce, also known as electronic commerce or internet commerce, refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions. Ecommerce is often used to refer to the sale of physical products online, but it can also describe any kind of commercial transaction that is facilitated through the internet. Whereas e-business refers to all aspects of operating an online business, ecommerce refers specifically to the transaction of goods and services.**

Ecommerce allows consumers to electronically exchange goods and services with no barriers of time or distance. Electronic commerce has expanded rapidly over the past five years and is predicted to continue at this rate, or even accelerate. In the near future the boundaries between "conventional" and "electronic" commerce will become increasingly blurred as more and more businesses move sections of their operations onto the Internet.

Business to Business or B2B refers to electronic commerce between businesses rather than between a business and a consumer. B2B businesses often deal with hundreds or even thousands of other businesses, either as customers or suppliers. Carrying out these transactions electronically provides vast competitive advantages over traditional methods. When implemented properly, ecommerce is often faster, cheaper and more convenient than the traditional methods of bartering goods and services.

Electronic transactions have been around for quite some time in the form of Electronic Data Interchange or EDI. EDI requires each supplier and customer

to set up a dedicated data link (between them), where ecommerce provides a cost-effective method for companies to set up multiple, ad-hoc links. Electronic commerce has also led to the development of electronic marketplaces where suppliers and potential customers are brought together to conduct mutually beneficial trade.

The road to creating a successful online store can be a difficult if unaware of ecommerce principles and what ecommerce is supposed to do for your online business. Researching and understanding the guidelines required to properly implement an e-business plan is a crucial part to becoming successful with online store building.

Ecommerce refers to the paperless exchange of business information using the following ways –

- **Electronic Data Exchange (EDI)**
- **Electronic Mail (e-mail)**
- **Electronic Bulletin Boards**
- **Electronic Fund Transfer (EFT)**
- **Other Network-based technologies**

Scope of e-commerce

Electronic Commerce is more than just buying and selling products online. It also includes the entire online process of developing, marketing, selling, delivering, servicing and paying for products and services. India has shown tremendous growth in the E-commerce segment. With an internet user base of over 300 million, India has third largest internet population after US & China.

India has witnessed a major breakthrough E-commerce success stories particularly in **e-retail in Consumer Electronics & Fashion Apparel & Home Furnishing segments**. E-commerce creates new opportunities for **entrepreneurial start-ups**. Ease of Internet access, Safe and secure payment modes coupled with aggressive marketing by E-Commerce Giants has revolutionized this segment. Rapid development in mobile technology has given way to **Mobile Commerce** with many E-Commerce companies shifting to App only model.

Scope of Electronic Commerce



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SCOPE OF E-COMMERCE

- Selling can be focussed to the global customer
- Pre-sales, subcontracts, supply
- Financing and insurance
- Commercial transactions: ordering, delivery, payment
- Product service and maintenance
- Co-operative product development
- Distributed co-operative working
- Use of public and private services
- Business-to-administrations (e.g. customs, etc)
- Transport and logistics
- Public procurement
- Automatic trading of digital goods
- Accounting
- Dispute resolution

Challenges & Future Aspects of e-commerce

E-Commerce, in spite of the opportunities it presents also has poses certain challenges which are sometimes too much to handle for start-ups:

- **E-Infrastructural Issues:** Internet is the backbone of e-commerce. Unfortunately, in India internet penetration is so far dismally low at 0.5 per cent of the population, penetration of personal computer (PC) as low as 3.5 per thousand of population and penetration of telephone only 2.1 per cent of population, e-commerce remains far away from the common man.
- **Branding & Marketing:** To get people to come on an e-Commerce site and make a purchase involves heavy cost due to branding and marketing. This cost is significant and can be brought down to cost per customer, if the volumes permit to do so. Experts say that the average figure for this metric in the current e-Commerce ecosystem is between INR 500 – 1000 customer, which isn't sustainable for even medium sized companies, let alone early stage ones.
- **Declining Margins:** With the introduction of a large number of players in the already competitive e-commerce market, the customer is pampered by offering huge discounts, offers, taking returns etc. resulting in razor-thin margins.
- **Logistics & Supply Chain:** Logistics failure in any area can mean detrimental damage to a startup's future and can hurt the brand overall. Add to this the need for a guaranteed return policy. Getting this right is a challenge.

- **Tax related issues:** Tax rate system of Indian market is another factor for lesser growth rate of e Commerce in India in comparison to other developed countries like USA and UK. In those countries, tax rate is uniform for all sectors whereas tax structure of India varies from sector to sector. This factor creates accounting problems for the Indian online business companies.
- **Touch and Feel:** Indian customers are more comfortable in buying products physically. Companies dealing with products like apparel, handicrafts, jewelry have to face challenges to sell their products as the buyers want to see and touch before they buy these stuffs.

Future of e-Commerce

- **Social Media:** Majority of online buying decisions are made on Social Media. Social network like Facebook, LinkedIn, Twitter, Google+, Pinterest etc have become a medium for easy log-in and purchase. Moreover, the clients can stay updated via the posts published on this media. Further, the advertising & promotions on these social sites has increased the chances of success of generating transactions to many folds.
- **Drone Delivery:** Companies have been working their way around to innovate the delivery process to shorten human effort as well as time. The answer to these problems is Delivery by Drones. DGCA is now fast tracking the process of issuing guidelines for the use of drones for civil purposes in India. If everything goes as per the plan, then India might become the first country in the world to allow the use of drones for civil purposes.
- **App only Approach:** Statistics suggest the future of internet lies in mobiles. Experts say more than 580 million people in India will use the

Internet by 2018, and 70-80% of them will access the Web on mobile phones. This will cause all major players to switch to app only model. About two-thirds of its online traffic of Flipkart comes from users in small cities and towns. Flipkart's app-only approach assumes larger significance in these places where most people don't own desktop computers and have limited access to broadband.

- **Google's Buy Now Button:** Google is reportedly working on its own “Buy Now” style button that would allow e-shoppers search for products on Google and purchase them with a single click, right through Google's own search results page. The button will be displayed near sponsored search results beneath a “Shop on Google” heading at the top of the page. When users click on the Google's “Buy Now” button, they will be re-directed to another Google page that will allow them to choose specific item details, such as color and size, and then select a shipping route. Google would then pass on order information, including the customer's name and shipping address, to the retailer.
- **Artificial Intelligence:** As the ecommerce space gets saturated, investors looking for innovative use of technology are zeroing in on companies developing artificial intelligence (AI) solutions. Jet Airways is experimenting with one such solution devised by Vizury. It sifts through the individual's public content on the internet, as well as the customer's previous searches and creates an instant profile. Based on this information, the airline knows whether to package hotel deals, or simply stick with airfare discounts. The system also allows them to predict how likely is it for the customer to upgrade, and how flexible would the customer be to change travel location or date.

Objectives of e- Commerce

- (i). **High reachability** - The main objective and at the same time need is traction on your web store. of, course if you are selling products online what you require are customers. If you are getting good reachability then your business will definitely grow. Therefore one of the objective is high reachability.
- (ii). **High Conversions-** if people are coming on your web store and purchasing something then it will calculate as conversions and from the number of people who are buying stuff from your web store we can calculate the conversion rate.
- (iii). **Customer satisfaction** - Customer is the main part of any E-commerce business so its very important to make your customer happy and satisfied. By providing quality and desirable products, on time delivery, 24*7 customer support, and timely sale & best deal offers you can make your customer happy. It is one of the main objectives of E-commerce.
- (iv). **Social popularity** - Unless and until you are not famous and popular among people you cannot establish your brand. social presence with Omni channel & Digital marketing is essential for any E-commerce business.

Advantages of e-Commerce

#1: Low Financial Cost

One of the ecommerce benefits is that it has a lower startup cost. Physical retail stores have to pay up to thousands of dollars to rent one of their store locations. Also, they have several upfront costs such as store signs, store design, buying inventory, sales equipment, and more. Physical retail stores also have to pay staff to work and run each location. They may also need to hire security staff depending on the product value in the store.

#2: 24/7 Potential Income

One of the advantages of ecommerce is that online stores are always open for business. With your Facebook ads, you can attract someone at 11 p.m. or 4 a.m.. Most physical location stores are open between 9 a.m. to 9 p.m. By being available at all hours, you can attract people who would normally pick up a product in stores, if the store were open. You can also attract those who may have odd work schedules or who don't have time to shop in-person. For a customer to order at night, you don't need to have employees working the night shift to ensure all orders get processed. You'll never need to hire a security guard.

#3: Sell Internationally

Next on the list of ecommerce benefits is that a new brand can sell to customers around the world easily. You have the ability to discover your audience whether they're in the U.K., South America, or neighboring countries. If you choose to dropship from AliExpress, many products offer affordable ePacket shipping or free shipping. This allows you to price and ship your products competitively to a worldwide audience.

#4: Easy to Showcase Bestsellers

Ecommerce benefits like being able to easily display best-sellers makes it easier to show off products to customers. While you can design a brick and mortar store to sway people to buy certain products, it's easier for a customer to find the best-sellers in an online store. The reason why you want customers to buy your best-sellers is because they're proven. Other customers have already bought them and are happy with their purchase. If you want to showcase new products to customers you can include them in your upsell, email marketing or retargeting ads.

#5: Personalized Online Experience

Website personalization, one of the online business advantages, can enhance the online shopping experience. Or segment email lists based on purchases made, location or even how much money a customer spent. You can also retarget a customer who visited your store showing them an ad for a product they added to

their cart and forgot about. If your online business has a login feature, you can have a welcome message appear such as ‘Welcome back (name).’ Product bundles can help the customer buy more for a better price increasing average order value. You can also personalize upsells based on what the customer has looked at or what you think they might like based on their purchase behavior.

#6: Affordable employees

One of the benefits of ecommerce is that hiring employees is affordable. You can choose to outsource work to virtual assistants in countries where the cost of living is much lower. You’ll need fewer employees in an ecommerce business than a retail location. A huge advantage of ecommerce is you don’t need to hire employees at launch. You can start and run an ecommerce business all by yourself.

#7: Easier to Encourage Impulse Buy

Another one of the ecommerce benefits is that getting your customers to become impulse buyers is possible. If you have an attractive product photography, one with vibrant color or human emotion, you can create ads that drive impulse buys. You can also execute a range of scarcity tactics such as countdown timers or showcasing limited quantities.

#8: Easy to Retarget or Remarket to Customer

It’s easy to create retargeting ads to retarget customers in your area when running an online business making it one of the most profitable ecommerce benefits. You can create a Facebook pixel. You can use the Shoelace Shopify app to retarget your browsers who visit your store but don’t buy. In ecommerce, you can retarget people who add to cart but don’t abandon and don’t buy or who visit a blog post and never buy. You can collect email addresses easily with an effective pop-up or lead magnet and continue marketing to your customers after you’ve made the sale.

#9: Customers Get a Less Invasive Experience

Some people dread walking into a brick and mortar store as they’re forced to interact with the store’s employees. Whether learning about a sales promotion

or being asked questions throughout the shopping experience, some may prefer online shopping as it can be a little less invasive making it one of the best benefits of ecommerce. If a customer wants to contact the store owner, they can click on a live chat feature, email or send a Facebook message.

#10: Gain Access to Customer Data Easily

One of the best ecommerce advantages is that you can easily gain access to data analysis about your customer. Most people feel uncomfortable giving away email addresses or postal codes to physical retailers. In ecommerce, you can get your customer's name, mailing address, e-mail address, and phone number. That means you have at least three different ways to communicate and build a relationship with them. You can even have them fill out marketing surveys, share their birth date with you, and more. If you ask them to create an account, you can obtain even more information from them to better serve them.

#11: Able to Process a High Number of Orders

If you choose to dropship, you can process a high number of orders with ease. As your business continues to grow, you might choose to hire employees to help with order processing. In retail stores, long line ups can deter people from shopping. With ecommerce, there's no waiting time. A customer can place orders on his or her own schedule with no delays allowing you to accept a high number of orders.

#12: Can Scale Business Quickly

One of the benefits of ecommerce is that it's easy to scale the business quickly. You can increase your ad budget when ads are performing well without having to worry too much about keeping up with the demand, especially if you dropship. With brick and mortar stores, if your store needs to grow in space to accommodate new products or add more cashiers. You'll need to find a bigger space, renovate and wait for your lease to end. This delays your ability to scale. If you create informational products, you run into a challenge again as it takes time to write ebooks, courses, and more. With dropshipping, you can add new products to your store without having to worry about shipping products or holding inventory allowing you to grow quickly.

13: Can Grow Business Organically with Content

With ecommerce, you can grow organic traffic and sales with ecommerce blogging. From making videos to writing blog content, you'll be able to optimize your store to drive traffic and sales without having to spend more money. A brick and mortar retailer would need to market to their customers to encourage visits or ensure they're located in a high traffic area to get more shoppers. With ecommerce, you'll be able to not only get traffic organically through content creation, you'll be able to monetize those customers with retargeting ads.

Disadvantages of e-Commerce

#1: No One Can Buy During a Site Crash

The worst of the ecommerce disadvantages is that no one can buy from your store if your site crashes. That's why it's important to ensure your website is hosted on the right platform. For example, if you're paying the minimum hosting fee and get a surge in traffic from a high converting ad or a television shout-out like Shark Tank, your site will likely crash. Fortunately, Shopify offers free hosting in their monthly fee allowing you to have one of the best servers on the market. In recent memory, there was only one time where sites were down. However, ecommerce stores weren't the only affected. Twitter, Spotify, Soundcloud, and more were affected by the crash. The issue was resolved the same day. Yet, site crashes on Shopify are so rare that it's likely not to cause problems in your business.

#2: Customers Can't Try Before They Buy

While this is currently a problem for many retailers, this won't be a long-term problem. With augmented reality, more stores are starting to add AR elements to their store to allow customers to try products on. Augmented reality ecommerce companies like Holition and Augment, offer solutions for businesses to create a more interactive experience with your customers. If you own a cosmetics store, you can check out Sephora's Virtual Artist app for an example of a beauty retailer with an augmented reality experience.

#3: Ecommerce Is Highly Competitive

Finding the right niche is another one of the worst ecommerce disadvantages. The reality is the best niches are often the most competitive that's why people are drawn to them. The more competitive a niche is, the more expensive ads for that niche are. There are a couple of ways around this. First, you can go after a different audience than your competitors. If all your customers are getting competitors through Facebook ads, you might try ranking organically with SEO optimization. If all your competitors are using Pinterest, you might try Instagram marketing as Instagram is also a very visual platform. Second, if your ads are expensive, you can send traffic to blog posts and retarget your customers who visit them to create lower cost ads.

#4: Customers Can Be Impatient

If a customer has a question in store a salesperson is on the floor ready to answer them. However, of the ecommerce disadvantages is that most businesses delay responding to customer inquiries. The reality is most customers expect a response from a business within the hour on social media. If you delay in responding to their message, they can become angry and shop somewhere else instead. You need to be online 24/7. You can hire customer service representatives who are trained to make your customers happy via Upwork.

#5: You Need To Ship Your Products

Customers consider shipping times to be one of the worst ecommerce disadvantages. When a customer shops in person she can take the product home right away. But, with online shopping, most customers receive their products in a week or more. While Amazon offers same day shipping, it wasn't a profitable model until they created Amazon Prime. It only became profitable because they have tens of millions of Prime members. The solution is to be transparent with your customer. Let them know when they can expect packages when they place an order.

#6: Physical Retail is Still More Popular Despite Decline

Even though one of the benefits of ecommerce is that it's growing, physical retail still owns most of the market share. In 2014, the retail industry had accumulated over \$22 trillion. Yet, ecommerce had only made \$1.3 trillion worldwide. Having an online business in the early stages allows you to become

a leader in your niche. Yet, most money made is in physical retail stores making it an ecommerce disadvantage. Hence, why Amazon, despite being the biggest online store, is now creating in-person stores. But, keep in mind that \$1.3 trillion in sales isn't a small number. There's still a lot of potential that online retailers can cash in on. And this number keeps growing.

Features of e-Commerce

E-Commerce provides the following features –

- (i). **Non-Cash Payment** – E-Commerce enables the use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website, and other modes of electronics payment.
- (ii). **24x7 Service availability** – E-commerce automates the business of enterprises and the way they provide services to their customers. It is available anytime, anywhere.
- (iii). **Advertising / Marketing** – E-commerce increases the reach of advertising of products and services of businesses. It helps in better marketing management of products/services.
- (iv). **Improved Sales** – Using e-commerce, orders for the products can be generated anytime, anywhere without any human intervention. It gives a big boost to existing sales volumes.
- (v). **Support** – E-commerce provides various ways to provide pre-sales and post-sales assistance to provide better services to customers.
- (vi). **Inventory Management** – E-commerce automates inventory management. Reports get generated instantly when required. Product inventory management becomes very efficient and easy to maintain.
- (vii). **Communication improvement** – E-commerce provides ways for faster, efficient, reliable communication with customers and partners.

Traditional Commerce v/s E-Commerce

Sr. No.	Traditional Commerce	E-Commerce
1	Heavy dependency on information exchange from person to person.	Information sharing is made easy via electronic communication channels making little dependency on person to person information exchange.
2	Communication/ transaction are done in synchronous way. Manual intervention is required for each communication or transaction.	Communication or transaction can be done in asynchronous way. Electronics system automatically handles when to pass communication to required person or do the transactions.
3	It is difficult to establish and maintain standard practices in traditional commerce.	A uniform strategy can be easily established and maintain in e-commerce.
4	Communications of business depends upon individual skills.	In e-Commerce or Electronic Market, there is no human intervention.
5	Unavailability of a uniform platform as traditional commerce depends heavily on personal communication.	E-Commerce website provides user a platform where all information is available at one place.
6	No uniform platform for information sharing as it depends heavily on personal communication.	E-Commerce provides a universal platform to support commercial / business activities across the globe.

E-Commerce advantages can be broadly classified in three major categories

- Advantages to Organizations
- Advantages to Consumers
- Advantages to Society
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Advantages to Organizations

- Using e-commerce, organizations can expand their market to national and international markets with minimum capital investment. An organization can easily locate more customers, best suppliers, and suitable business partners across the globe.
- E-commerce helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.
- E-commerce improves the brand image of the company.
- E-commerce helps organization to provide better customer services.
- E-commerce helps to simplify the business processes and makes them faster and efficient.
- E-commerce reduces the paper work.
- E-commerce increases the productivity of organizations. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.

Advantages to Customers

- It provides 24x7 support. Customers can enquire about a product or service and place orders anytime, anywhere from any location.
- E-commerce application provides users with more options and quicker delivery of products.
- E-commerce application provides users with more options to compare and select the cheaper and better options.

- A customer can put review comments about a product and can see what others are buying, or see the review comments of other customers before making a final purchase.
- E-commerce provides options of virtual auctions.
- It provides readily available information. A customer can see the relevant detailed information within seconds, rather than waiting for days or weeks.
- E-Commerce increases the competition among organizations and as a result, organizations provide substantial discounts to customers.

Advantages to Society

- Customers need not travel to shop a product, thus less traffic on road and low air pollution.
- E-commerce helps in reducing the cost of products, so less affluent people can also afford the products.
- E-commerce has enabled rural areas to access services and products, which are otherwise not available to them.
- E-commerce helps the government to deliver public services such as healthcare, education, social services at a reduced cost and in an improved manner.

The disadvantages of e-commerce can be broadly classified into two major categories –

1. Technical disadvantages
2. Non-Technical disadvantages

Technical Disadvantages

- There can be lack of system security, reliability or standards owing to poor implementation of e-commerce.
- The software development industry is still evolving and keeps changing rapidly.
- In many countries, network bandwidth might cause an issue.

- Special types of web servers or other software might be required by the vendor, setting the e-commerce environment apart from network servers.
- Sometimes, it becomes difficult to integrate an e-commerce software or website with existing applications or databases.
- There could be software/hardware compatibility issues, as some e-commerce software may be incompatible with some operating system or any other component.

Non-Technical Disadvantages

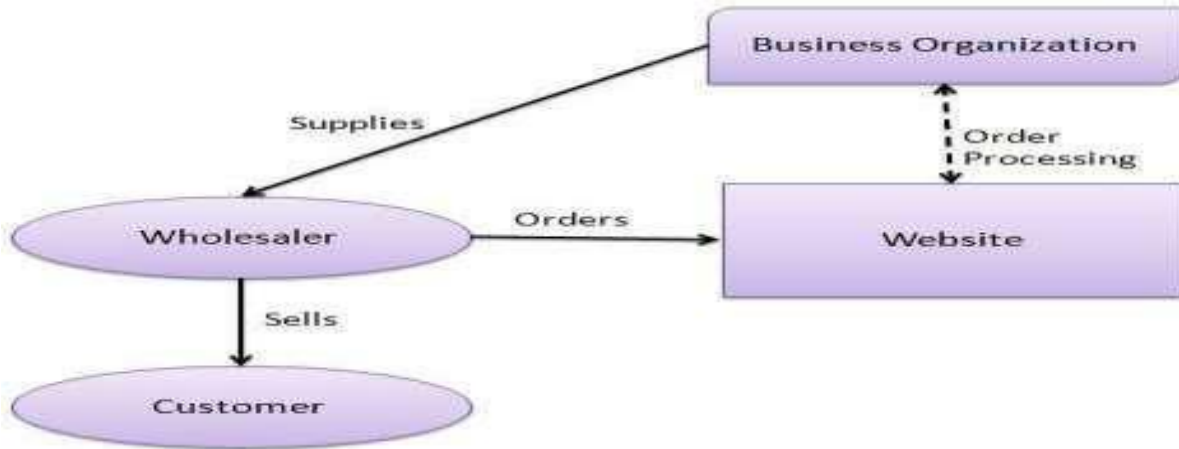
- **Initial cost** – the cost of creating/building an e-commerce application in-house may be very high. There could be delays in launching an e-Commerce application due to mistakes, and lack of experience.
- **User resistance** – Users may not trust the site being an unknown faceless seller. Such mistrust makes it difficult to convince traditional users to switch from physical stores to online/virtual stores.
- **Security/ Privacy** – It is difficult to ensure the security or privacy on online transactions.
- Lack of touch or feel of products during online shopping is a drawback.
- E-commerce applications are still evolving and changing rapidly.
- Internet access is still not cheaper and is inconvenient to use for many potential customers, for example, those living in remote villages.

E-commerce business models can generally be categorized into the following categories.

- **Business - to - Business (B2B)**
- **Business - to - Consumer (B2C)**
- **Consumer - to - Consumer (C2C)**
- **Consumer - to - Business (C2B)**
- **Business - to - Government (B2G)**
- **Government - to - Business (G2B)**
- **Government - to - Citizen (G2C)**

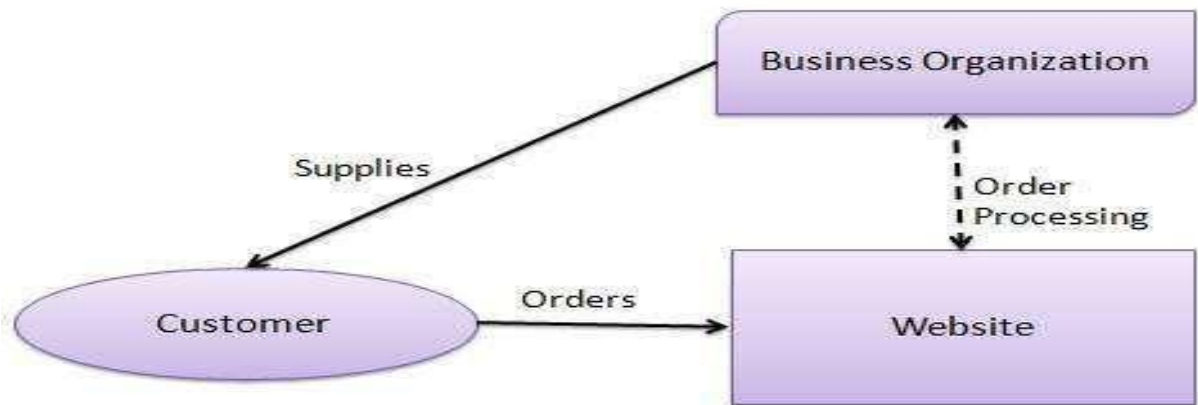
Business - to - Business

A website following the B2B business model sells its products to an intermediate buyer who then sells the product to the final customer. As an example, a wholesaler places an order from a company's website and after receiving the consignment, sells the end product to the final customer who comes to buy the product at one of its retail outlets.



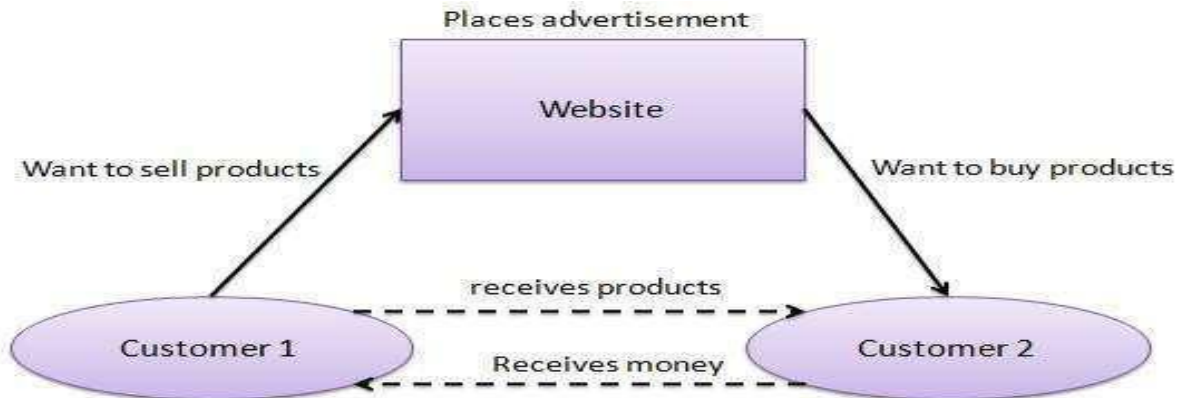
Business - to - Consumer

A website following the B2C business model sells its products directly to a customer. A customer can view the products shown on the website. The customer can choose a product and order the same. The website will then send a notification to the business organization via email and the organization will dispatch the product/goods to the customer.



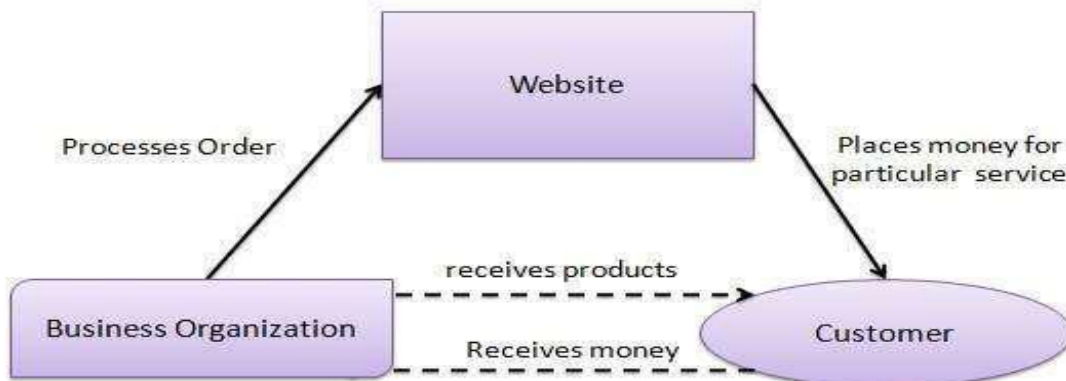
Consumer - to - Consumer

A website following the C2C business model helps consumers to sell their assets like residential property, cars, motorcycles, etc., or rent a room by publishing their information on the website. Website may or may not charge the consumer for its services. Another consumer may opt to buy the product of the first customer by viewing the post/advertisement on the website.



Consumer - to - Business

In this model, a consumer approaches a website showing multiple business organizations for a particular service. The consumer places an estimate of amount he/she wants to spend for a particular service. For example, the comparison of interest rates of personal loan/car loan provided by various banks via websites. A business organization who fulfills the consumer's requirement within the specified budget, approaches the customer and provides its services.



Business - to - Government

B2G model is a variant of B2B model. Such websites are used by governments to trade and exchange information with various business organizations. Such websites are accredited by the government and provide a medium to businesses to submit application forms to the government.



Government - to - Business

Governments use B2G model websites to approach business organizations. Such websites support auctions, tenders, and application submission functionalities.

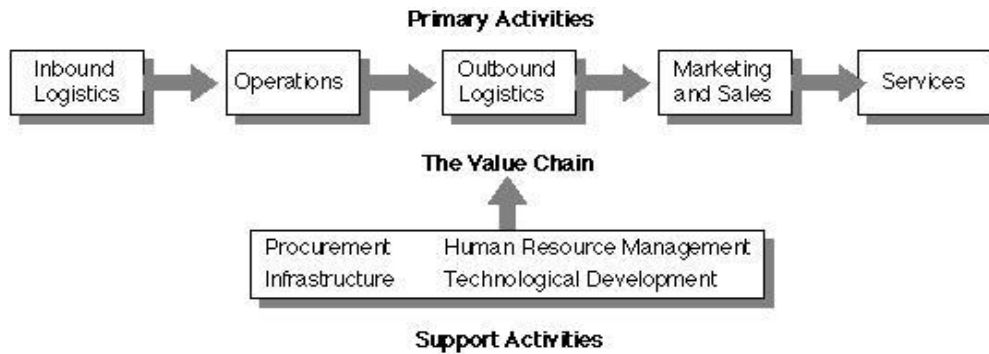


Government - to - Citizen

Governments use G2C model websites to approach citizen in general. Such websites support auctions of vehicles, machinery, or any other material. Such website also provides services like registration for birth, marriage or death certificates. The main objective of G2C websites is to reduce the average time for fulfilling citizen's requests for various government services.



Porter's Value Chain



The idea of the value chain is based on the process view of organizations, the idea of seeing a manufacturing (or service) organization as a system, made up of subsystems each with inputs, transformation processes and outputs. Inputs, transformation processes, and outputs involve the acquisition and consumption of resources - money, labour, materials, equipment, buildings, land, administration and management. How value chain activities are carried out determines costs and affects profits.

Most organizations engage in hundreds, even thousands, of activities in the process of converting inputs to outputs. These activities can be classified generally as either primary or support activities that all businesses must undertake in some form.

According to Porter (1985), the primary activities are:

1. **Inbound Logistics** - involve relationships with suppliers and include all the activities required to receive, store, and disseminate inputs.
2. **Operations** - are all the activities required to transform inputs into outputs (products and services).
3. **Outbound Logistics** - include all the activities required to collect, store, and distribute the output.

4. **Marketing and Sales** - activities inform buyers about products and services, induce buyers to purchase them, and facilitate their purchase.
5. **Service** - includes all the activities required to keep the product or service working effectively for the buyer after it is sold and delivered.

Secondary activities are:

1. **Procurement** - is the acquisition of inputs, or resources, for the firm.
2. **Human Resource management** - consists of all activities involved in recruiting, hiring, training, developing, compensating and (if necessary) dismissing or laying off personnel.
3. **Technological Development** - pertains to the equipment, hardware, software, procedures and technical knowledge brought to bear in the firm's transformation of inputs into outputs.
4. **Infrastructure** - serves the company's needs and ties its various parts together, it consists of functions or departments such as accounting, legal, finance, planning, public affairs, government relations, quality assurance and general management.

Porter's Value Chain

Understanding How Value Is Created Within Organizations

How does your organization create value?

How do you change business inputs into business outputs in such a way that they have a greater value than the original cost of creating those outputs?

This isn't just a dry question: it's a matter of fundamental importance to companies, because it addresses the economic logic of why the organization exists in the first place.

Which activities are adding value to your organization, and how?

Manufacturing companies create value by acquiring raw materials and using them to produce something useful. Retailers bring together a range of products and present them in a way that's convenient to customers, sometimes supported by services such as fitting rooms or personal shopper advice. And insurance companies offer policies to customers that are underwritten by larger re-insurance policies. Here, they're packaging these larger policies in a customer-friendly way, and distributing them to a mass audience.

The value that's created and captured by a company is the profit margin:

Value Created and Captured – Cost of Creating that Value = Margin

The more value an organization creates, the more profitable it is likely to be. And when you provide more value to your customers, you build competitive advantage.

Understanding how your company creates value, and looking for ways to add more value, are critical elements in developing a competitive strategy. Michael Porter discussed this in his influential 1985 book "Competitive Advantage," in which he first introduced the concept of the value chain.

A value chain is a set of activities that an organization carries out to create value for its customers. Porter proposed a general-purpose value chain that companies can use to examine all of their activities, and see how they're connected. The way in which value chain activities are performed determines costs and affects profits, so this tool can help you understand the sources of value for your organization.

Elements in Porter's Value Chain

Rather than looking at departments or accounting cost types, Porter's Value Chain focuses on systems, and how inputs are changed into the outputs purchased by consumers. Using this viewpoint, Porter described a chain of activities common to all businesses, and he divided them into primary and support activities, as shown below.

Figure 1: Porter's Generic Value Chain



Primary Activities

Primary activities relate directly to the physical creation, sale, maintenance and support of a product or service. They consist of the following:

- **Inbound logistics** – These are all the processes related to receiving, storing, and distributing inputs internally. Your supplier relationships are a key factor in creating value here.
- **Operations** – These are the transformation activities that change inputs into outputs that are sold to customers. Here, your operational systems create value.
- **Outbound logistics** – These activities deliver your product or service to your customer. These are things like collection, storage, and distribution systems, and they may be internal or external to your organization.
- **Marketing and sales** – These are the processes you use to persuade clients to purchase from you instead of your competitors. The benefits you offer, and how well you communicate them, are sources of value here.
- **Service** – These are the activities related to maintaining the value of your product or service to your customers, once it's been purchased.

Support Activities

These activities support the primary functions above. In our diagram, the dotted lines show that each support, or secondary, activity can play a role in each primary activity. For example, procurement supports operations with certain activities, but it also supports marketing and sales with other activities.

- **Procurement (purchasing)** – This is what the organization does to get the resources it needs to operate. This includes finding vendors and negotiating best prices.
- **Human resource management** – This is how well a company recruits, hires, trains, motivates, rewards, and retains its workers. People are a significant source of value, so businesses can create a clear advantage with good HR practices.
- **Technological development** – These activities relate to managing and processing information, as well as protecting a company's knowledge base. Minimizing information technology costs, staying current with technological advances, and maintaining technical excellence are sources of value creation.
- **Infrastructure** – These are a company's support systems, and the functions that allow it to maintain daily operations. Accounting, legal, administrative, and general management are examples of necessary infrastructure that businesses can use to their advantage.

Companies use these primary and support activities as "building blocks" to create a valuable product or service.

Using Porter's Value Chain

To identify and understand your company's value chain, follow these steps.

Step 1 – Identify sub activities for each primary activity

For each primary activity, determine which specific sub activities create value. There are three different types of sub activities:

- Direct activities create value by themselves. For example, in a book publisher's marketing and sales activity, direct sub activities include making sales calls to bookstores, advertising, and selling online.
- Indirect activities allow direct activities to run smoothly. For the book publisher's sales and marketing activity, indirect subactivities include managing the sales force and keeping customer records.
- Quality assurance activities ensure that direct and indirect activities meet the necessary standards. For the book publisher's sales and marketing activity, this might include proofreading and editing advertisements.

Step 2 – Identify sub activities for each support activity.

For each of the Human Resource Management, Technology Development and Procurement support activities, determine the sub activities that create value within each primary activity. For example, consider how human resource management adds value to inbound logistics, operations, outbound logistics, and so on. As in Step 1, look for direct, indirect, and quality assurance sub activities.

Then identify the various value-creating sub activities in your company's infrastructure. These will generally be cross-functional in nature, rather than specific to each primary activity. Again, look for direct, indirect, and quality assurance activities.

Step 3 – Identify links

Find the connections between all of the value activities you've identified. This will take time, but the links are key to increasing competitive advantage from the value chain framework. For example, there's a link between developing the sales force (an HR investment) and sales volumes. There's another link between order turnaround times, and service phone calls from frustrated customers waiting for deliveries.

Step 4 – Look for opportunities to increase value

Review each of the sub activities and links that you've identified, and think about how you can change or enhance it to maximize the value you offer to customers (customers of support activities can be internal as well as external).

Supply chain management (SCM)

Supply chain management (SCM) is the broad range of activities required to plan, control and execute a product's flow, from acquiring raw materials and production through distribution to the final customer, in the most streamlined and cost-effective way possible.



Bottom of Form

SCM encompasses the integrated planning and execution of processes required to optimize the flow of materials, information and financial capital in the areas that broadly include demand planning, sourcing, production, inventory management and storage, transportation -- or logistics -- and return for excess or defective products. Both business strategy and specialized software are used in these endeavors to create a competitive advantage.

Supply chain management is an expansive, complex undertaking that relies on each partner -- from suppliers to manufacturers and beyond -- to run well. Because of this, effective supply chain management also requires change management, collaboration and risk management to create alignment and communication between all the entities.

In addition, supply chain sustainability -- which covers environmental, social and legal issues, in addition to sustainable procurement -- and the closely related

concept of corporate social responsibility -- which evaluates a company's effect on the environment and social well-being -- are areas of major concern for today's companies.

Logistics vs. supply chain management

The terms supply chain management and logistics are often confused or used synonymously. However, logistics is a component of supply chain management. It focuses on moving a product or material in the most efficient way so it arrives at the right place at the right time. It manages activities such as packaging, transportation, distribution, warehousing and delivery.

In contrast, SCM involves a more expansive range of activities, such as strategic sourcing of raw materials, procuring the best prices on goods and materials, and coordinating supply chain visibility efforts across the supply chain network of partners, to name just a few.

Benefits of supply chain management

Supply chain management creates efficiencies, raises profits, lowers costs, boosts collaboration and more. SCM enables companies to better manage demand, carry the right amount of inventory, deal with disruptions, keep costs to a minimum and meet customer demand in the most effective way possible. These SCM benefits are achieved through the appropriate strategies and software to help manage the growing complexity of today's supply chains.

E-Commerce - Payment Systems

E-commerce sites use electronic payment, where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing the paperwork, transaction costs, and labor cost. Being user friendly and less time-consuming than manual processing, it helps business organization to expand its market reach/expansion. Listed below are some of the modes of electronic payments –

1. Credit Card
2. Debit Card
3. Smart Card
4. E-Money
5. Electronic Fund Transfer (EFT)

1. Credit Card

Payment using credit card is one of most common mode of electronic payment. Credit card is small plastic card with a unique number attached with an account. It has also a magnetic strip embedded in it which is used to read credit card via card readers. When a customer purchases a product via credit card, credit card issuer bank pays on behalf of the customer and customer has a certain time period after which he/she can pay the credit card bill. It is usually credit card monthly payment cycle. Following are the actors in the credit card system.

- **The card holder** – Customer
- **The merchant** – seller of product who can accept credit card payments.
- **The card issuer bank** – card holder's bank
- **The acquirer bank** – the merchant's bank
- **The card brand** – for example, visa or Mastercard.

Credit Card Payment Process

Step	Description
Step 1	Bank issues and activates a credit card to the customer on his/her request.
Step 2	The customer presents the credit card information to the merchant site or to the merchant from whom he/she wants to purchase a product/service.
Step 3	Merchant validates the customer's identity by asking for approval from the card brand company.
Step 4	Card brand company authenticates the credit card and pays the transaction by credit. Merchant keeps the sales slip.
Step 5	Merchant submits the sales slip to acquirer banks and gets the service charges paid to him/her.
Step 6	Acquirer bank requests the card brand company to clear the credit amount and gets the payment.
Step 6	Now the card brand company asks to clear the amount from the issuer bank and the amount gets transferred to the card brand company.

2. Debit Card

Debit card, like credit card, is a small plastic card with a unique number mapped with the bank account number. It is required to have a bank account before getting a debit card from the bank. The major difference between a debit card and a credit card is that in case of payment through debit card, the amount gets deducted from the card's bank account immediately and there should be

sufficient balance in the bank account for the transaction to get completed; whereas in case of a credit card transaction, there is no such compulsion.

Debit cards free the customer to carry cash and cheques. Even merchants accept a debit card readily. Having a restriction on the amount that can be withdrawn in a day using a debit card helps the customer to keep a check on his/her spending.

3. Smart Card

Smart card is again similar to a credit card or a debit card in appearance, but it has a small microprocessor chip embedded in it. It has the capacity to store a customer's work-related and/or personal information. Smart cards are also used to store money and the amount gets deducted after every transaction.

Smart cards can only be accessed using a PIN that every customer is assigned with. Smart cards are secure, as they store information in encrypted format and are less expensive/provides faster processing. Mondex and Visa Cash cards are examples of smart cards.

4. e-Money

E-Money transactions refer to situation where payment is done over the network and the amount gets transferred from one financial body to another financial body without any involvement of a middleman. E-money transactions are faster, convenient, and saves a lot of time.

Online payments done via credit cards, debit cards, or smart cards are examples of emoney transactions. Another popular example is e-cash. In case of e-cash, both customer and merchant have to sign up with the bank or company issuing e-cash.

5. Electronic Fund Transfer

It is a very popular electronic payment method to transfer money from one bank account to another bank account. Accounts can be in the same bank or different banks. Fund transfer can be done using ATM (Automated Teller Machine) or using a computer.

Nowadays, internet-based EFT is getting popular. In this case, a customer uses the website provided by the bank, logs in to the bank's website and registers

another bank account. He/she then places a request to transfer certain amount to that account. Customer's bank transfers the amount to other account if it is in the same bank, otherwise the transfer request is forwarded to an ACH (Automated Clearing House) to transfer the amount to other account and the amount is deducted from the customer's account. Once the amount is transferred to other account, the customer is notified of the fund transfer by the bank.

E-Commerce - Security Systems

Security is an essential part of any transaction that takes place over the internet. Customers will lose his/her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments/transactions –

- (i). **Confidentiality** – Information should not be accessible to an unauthorized person. It should not be intercepted during the transmission.
- (ii). **Integrity** – Information should not be altered during its transmission over the network.
- (iii). **Availability** – Information should be available wherever and whenever required within a time limit specified.
- (iv). **Authenticity** – There should be a mechanism to authenticate a user before giving him/her an access to the required information.
- (v). **Non-Repudiability** – It is the protection against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.
- (vi). **Encryption** – Information should be encrypted and decrypted only by an authorized user.
- (vii). **Auditability** – Data should be recorded in such a way that it can be audited for integrity requirements.

Measures to ensure Security

Major security measures are following –

- (i). **Encryption** – It is a very effective and practical way to safeguard the data being transmitted over the network. Sender of the information encrypts the data using a secret code and only the specified receiver can decrypt the data using the same or a different secret code.
- (ii). **Digital Signature** – Digital signature ensures the authenticity of the information. A digital signature is an e-signature authenticated through encryption and password.
- (iii). **Security Certificates** – Security certificate is a unique digital id used to verify the identity of an individual website or user.

Security Protocols in Internet

We will discuss here some of the popular protocols used over the internet to ensure secured online transactions.

Secure Socket Layer (SSL)

It is the most commonly used protocol and is widely used across the industry. It meets following security requirements –

- Authentication
- Encryption
- Integrity
- Non-reputability

"https://" is to be used for HTTP urls with SSL, where as "http://" is to be used for HTTP urls without SSL.

Secure Hypertext Transfer Protocol (SHTTP)

SHTTP extends the HTTP internet protocol with public key encryption, authentication, and digital signature over the internet. Secure HTTP supports multiple security mechanism, providing security to the end-users. SHTTP works by negotiating encryption scheme types used between the client and the server.

Secure Electronic Transaction

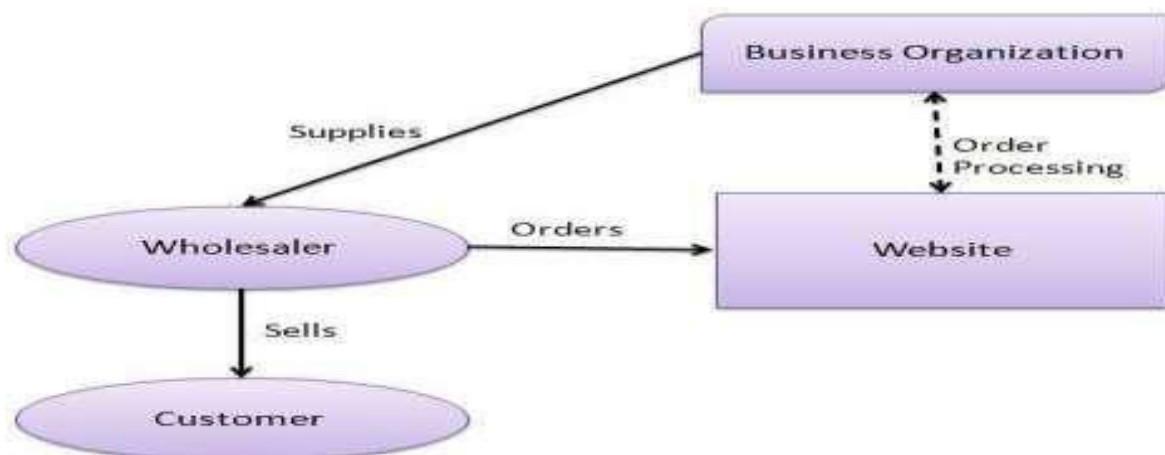
It is a secure protocol developed by MasterCard and Visa in collaboration.

Theoretically, it is the best security protocol. It has the following components –

- **Card Holder's Digital Wallet Software** – Digital Wallet allows the card holder to make secure purchases online via point and click interface.
- **Merchant Software** – This software helps merchants to communicate with potential customers and financial institutions in a secure manner.
- **Payment Gateway Server Software** – Payment gateway provides automatic and standard payment process. It supports the process for merchant's certificate request.
- **Certificate Authority Software** – This software is used by financial institutions to issue digital certificates to card holders and merchants, and to enable them to register their account agreements for secure electronic commerce.

E-Commerce - B2B Model

A website following the B2B business model sells its products to an intermediate buyer who then sells the products to the final customer. As an example, a wholesaler places an order from a company's website and after receiving the consignment, it sells the endproduct to the final customer who comes to buy the product at the wholesaler's retail outlet.



B2B identifies both the seller as well as the buyer as business entities. B2B covers a large number of applications, which enables business to form relationships with their distributors, re-sellers, suppliers, etc. Following are the leading items in B2B eCommerce.

- Electronics
- Shipping and Warehousing
- Motor Vehicles
- Petrochemicals
- Paper
- Office products
- Food
- Agriculture

Key Technologies

Following are the key technologies used in B2B e-commerce –

- **Electronic Data Interchange (EDI)** – EDI is an inter-organizational exchange of business documents in a structured and machine processable format.
- **Internet** – Internet represents the World Wide Web or the network of networks connecting computers across the world.
- **Intranet** – Intranet represents a dedicated network of computers within a single organization.
- **Extranet** – Extranet represents a network where the outside business partners, suppliers, or customers can have a limited access to a portion of enterprise intranet/network.
- **Back-End Information System Integration** – Back-end information systems are database management systems used to manage the business data.

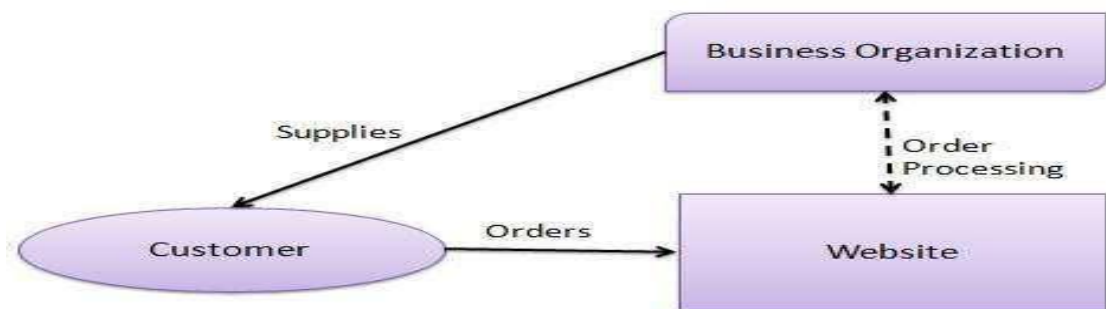
Architectural Models

Following are the architectural models in B2B e-commerce –

- **Supplier Oriented marketplace** – In this type of model, a common marketplace provided by supplier is used by both individual customers as well as business users. A supplier offers an e-stores for sales promotion.
- **Buyer Oriented marketplace** – In this type of model, buyer has his/her own market place or e-market. He invites suppliers to bid on product's catalog. A Buyer company opens a bidding site.
- **Intermediary Oriented marketplace** – In this type of model, an intermediary company runs a market place where business buyers and sellers can transact with each other.

E-Commerce - B2C Model

In B2C model, a business website is a place where all the transactions take place directly between a business organization and a consumer.



In the B2C model, a consumer goes to the website, selects a catalog, orders the catalog, and an email is sent to the business organization. After receiving the order, goods are dispatched to the customer. Following are the key features of the B2C model –

- Heavy advertising required to attract customers.
- High investments in terms of hardware/software.
- Support or good customer care service.

Consumer Shopping Procedure

Following are the steps used in B2C e-commerce

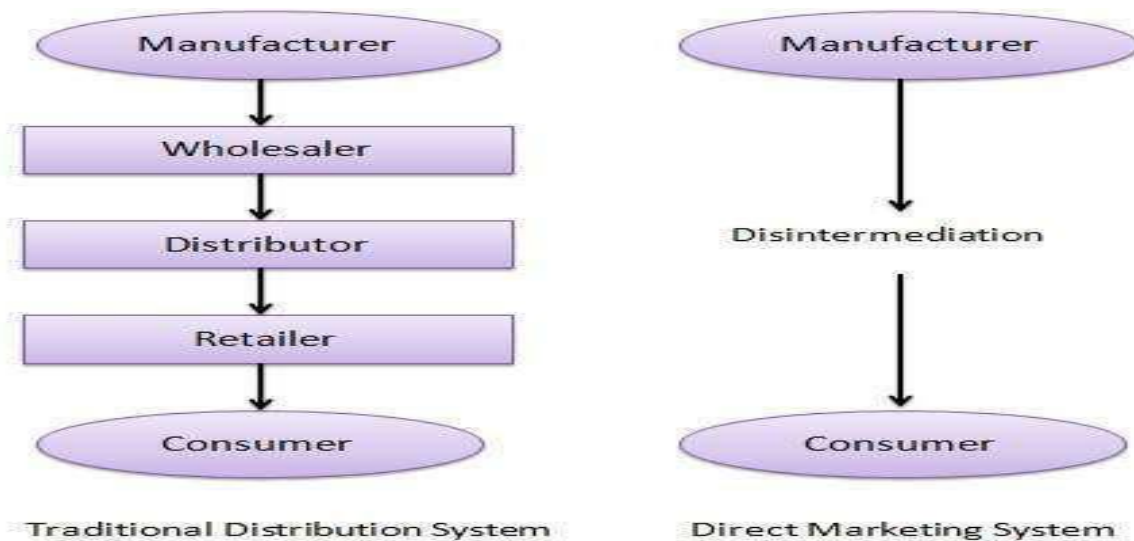
– A consumer –

- determines the requirement.

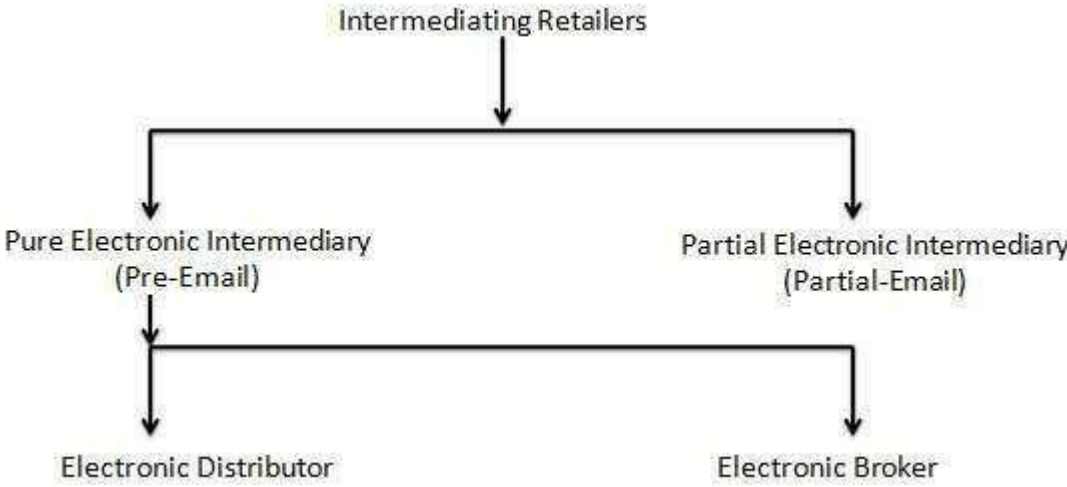
- searches available items on the website meeting the requirement.
- compares similar items for price, delivery date or any other terms.
- places the order.
- pays the bill.
- receives the delivered item and review/inspect them.
- consults the vendor to get after service support or returns the product if not satisfied with the delivered product.

Disintermediation and Re-intermediation

In traditional commerce, there are intermediating agents like wholesalers, distributors, and retailers between the manufacturer and the consumer. In B2C websites, a manufacturer can sell its products directly to potential consumers. This process of removal of business layers responsible for intermediary functions is called **disintermediation**.



Nowadays, new electronic intermediary breeds such as e-mall and product selection agents are emerging. This process of shifting of business layers responsible for intermediary functions from traditional to electronic mediums is called **re-intermediation**.



Brokerage Model

Brokers are market-makers: They bring buyers and sellers together and facilitate transactions. Brokers play a frequent role in business-to-business (B2B), business-to-consumer (B2C), or consumer-to-consumer (C2C) markets. Usually a broker charges a fee or commission for each transaction it enables. The formula for fees can vary. Brokerage models include:

Marketplace Exchange -- provides a full range of services covering the transaction process, from market assessment to negotiation and fulfillment, for a particular industry. The exchange can operate independently of the industry, or it can be backed by an industry consortium. The broker typically charges the seller a transaction fee based on the value of the sale. There also may be membership fees.

Business Trading Community -- or vertical web community, is a comprehensive source of information and interaction for a particular vertical market. A community may contain product information, daily industry news and articles, job listings and classifieds.

Buy/Sell Fulfillment -- customer specifies buy or sell orders for a product or service, including price, delivery, etc. The broker charges the buyer and/or seller a transaction fee.

Demand Collection System -- the patented "name-your-price" model pioneered by Priceline. Prospective buyer makes a final (binding) bid for a specified good or service, and the broker arranges fulfillment.

Auction Broker -- conducts auctions for sellers (individuals or merchants). Broker charges the seller a listing fee and commission scaled with the value of the transaction. Auctions vary in terms of the offering and bidding rules. Reverse auctions are a common variant.

Transaction Broker -- provides a third-party payment mechanism for buyers and sellers to settle a transaction.

Bounty Broker -- offers a reward for finding a person, thing, idea, or other desired, but hard to find item. The broker may list items for a flat fee and a percent of the reward for items that are found.

Distributor -- is a catalog operation that connects a large number of product manufacturers with volume and retail buyers. Broker facilitates business transactions between franchised distributors and their trading partners.

Search Agent -- is an agent (i.e., a software agent or "robot") used to search-out the price and availability for a good or service specified by the buyer, or to locate hard to find information.

Virtual Mall -- hosts online merchants. The Mall typically charges setup, monthly listing, and/or per transaction fees. More sophisticated malls provide automated transaction services and relationship marketing opportunities.

The aggregator model – rise, challenges, and scope of this approach in India

The aggregator model refers to a business approach utilized by various enterprises in the e-commerce space, wherein such businesses gather information on specific goods and services from various competing sources in the market through their online platform. Typically, the goods and / or service providers are the real customers of such aggregator based businesses. In return, the aggregator helps these service providers gain more customers, usually for a certain fee or commission.

Aggregator Business Model is a network model where the firm collects the information about a particular good/ service providers, make the providers their partners, and sell their services under its own brand. Since the aggregator is a brand, it has to provide services which have a uniform quality and price. This is done through signing up a contract with the partners.

The good/service providers never become aggregator's employees and continue to be the owners of the good/service provided. Aggregator just help them in marketing in a unique win-win way.

Characteristics of Aggregators

1. Customers

The aggregator business model runs on a two-fold customers strategy where the service consumers as well as the goods/service providers acts as the customers of the company. The brand is built in such a way so as to attract both of the parties to use this platform rather than the competitors.

2. Industry

All the service providers are from the same industry. Aggregators collect the good/service providers of a single industry and organize them under his own brand. Like Airbnb for Hotels, Uber for taxis, Oyo for hotel rooms, etc

3. Partnership Model

The good/service providers are not the employees of the aggregator. They act as partners to the business. Partners always have the freedom to accept or to reject the offer provided by the aggregator (these terms are clarified in the contract).

4. Brand

Aggregators spend most of their revenue in building up a brand. This brand has certain notable features like – quality, price band, on demand delivery, etc. All the goods/services are provided under a single brand but by different providers.

Branding is done at every customer touch point to have a recall value.

5. Quality

The aggregator strives to provide a standardized quality to every user. They make sure that the partners provide you the standardized quality product/service. These aggregators have teams that make sure quality is maintained.

6. Contract

A contract is signed between the aggregator and the goods/service provider where all the terms are cleared. The terms provide a win-win situation for both the parties where the partners focus on providing quality product/service to the

customers and the aggregator focus on marketing and creating more leads for the partners.

Terms usually include

- Branding Terms.
- The standardized quality required by the aggregator.
- The Commission (*Uber* Business model), or
- Take Up rate (*Oyo* Business model).
- Other terms depending on the industry and the aggregator involved.

Aggregator Revenue Model

As already stated above, the good/service providers are the real customers of the aggregators.

- Aggregators provide them with the customers and in return charge some commission. (*Uber* Business Model), or
- The partners quote the minimum price at which they'll operate and the aggregators, after adding up the take up rate, quote the final price to the consumer. (*Oyo* Business Model)

This method isn't always in operation. The revenue generation is different for different business stage, cycle, and season. There is a big role of discounts and surge pricing in determining the total revenue generation by the aggregators. They might

Pricing

Aggregators are different from a marketplace (like Amazon, Alibaba, Flipkart, etc.). They provide different services for different but standardised prices (or price bands).

For E.g. *UberX* has a definite price per kilometer.

Competition

Competition in aggregator business model is tough to handle as same partners might work for competitors.

How Does Aggregator Business Model Work?

Theoretical explanation of this model is simple.

1. Aggregator visits the Good/service providers.

2. Aggregator promises them more customers and proposes a partnership plan.
3. Service providers are now the partners.
4. Aggregator builds up his own brand and tries to attract customers through many marketing strategies.
5. Customers make purchases through the aggregator.
6. Partners get the customers as promised.
7. Aggregator gets the commission.



COMMUNITY MODEL:

The community model is a method of developing an online presence in which several individuals or groups are encouraged to join and participate in ongoing interaction designed around a common purpose. Web communities, or virtual communities, were not only a way for like-minded people to come together online, they also were an increasingly important element of business plans. The late 1990s and early 2000s saw the cropping up of countless new Web communities facilitating one-to-one, one-to-many, many-to-one, and many-to-many lines of communication and cooperation. Communities utilize electronic tools such as forums, chat rooms, e-mail lists, message boards, and other

interactive Internet mechanisms, which are usually tailored to the particular community. Ideally, such communities are as interactive as possible, creating the greatest level of synthesis between their various offerings. Thus, the discussions that take place in the forums can be linked to content elsewhere on a Web site, while the company or community host can generate new content based on discussions that take place between community members.

Broadly, the community model comes in two basic varieties: those centered on relationships and those centered on tasks. The former typically are informal, grassroots-oriented communities that revolve around shared interests, ideas, topics, and goals. In these communities, the development of relationships is the primary goal. To maximize member involvement, community sites must offer maximum degrees of interactivity and personalization. For example, GeoCities offers space and tools for members to set up their own Web sites and establish virtual communities within the broader GeoCities community. Task-centered communities generally are more structured and impersonal. The relationships established or augmented online are a means to a mutual end, such as enhanced profits. More specifically, Web communities are established between business partners, between businesses and their customers, between different groups of customers, within companies, and between individuals and groups devoted to particular topics.

In business-to-business (B2B) relationships, the community model provides all community members with the ability to share and check electronic invoices, communicate and exchange funds on secured networks, and resolve problems quickly and openly. Internet communities offer exceptionally streamlined workflow processes between and within companies, where the functionality of key tasks is integrated and synthesized. This necessitates less personnel,

paperwork, and software, and boosts efficiency, thereby minimizing operating costs and enhancing profit margins.

Web communities allow companies to use the Web to open up new channels for customer support and outreach, advertising, sales, ordering, distribution, and communication. In the field of customer service, the online community is often viewed as a vital step in creating consistent and seamless service across all kinds of media, mirroring the call center as a vehicle for quick service but going beyond it in the level of interactivity. For instance, companies may encourage their users to access the Web to receive customer support in an online forum, in which they can seek advice from a company expert and interact with other customers. In this way, customers are encouraged to become part of a coherent community tied to the company, thereby creating added value and boosting customer loyalty. This built-in source of customer feedback can be extremely valuable, allowing companies to take proactive measures to improve products and customer service. It also enables firms to further personalize their sites and build customer profiles that can be utilized for later advertising and product development. In addition, companies can take advantage of such features to monitor their customers' needs and values, and modify their products and services accordingly. Finally, such arrangements can lighten the burden on company support staff, as customers are encouraged to get and offer help to other customers.

Infomediary Model:

An infomediary is a Web site that provides specialized information on behalf of producers of goods and services and their potential customers. The term is a composite of information and intermediary. The advent of the Web has made possible quick 24-hour access to information databases that previously were not available. Gathering these information aggregates and adding services to them is

now the business of companies like the Thomas Register of Manufacturers that can bring a base of information from the print medium to the Web. Perhaps more importantly as infomediaries are Web sites that are gathering, organizing, and linking to the new information and services that is being added to the Web.

Infomediaries can be divided into those intended for consumers and those intended for businesses. Any consumer e-commerce site that provides information as well as an order form could be classed as an infomediary.

Competitive Advantage

To achieve a **competitive advantage** is the goal of all business strategy. It means that a company either provides a better solution to a specific problem than its competitors or offers a similar kind of solution for a lower price and is a marketing concept. A business unit is said to have achieved competitive advantage when it “sustains profits that exceed the average for its industry” (<http://quickmba.com/strategy/competitive-advantage>). Michael E. Porter who formed the term ‘competitive advantage’ with his book *Competitive Advantage: Creating and Sustaining Superior Performance* in 1985, differentiated two basic types of competitive advantage: cost strategy and differentiation strategy.

Cost advantage vs. differentiation advantage

Selling a product (or service) for a lower price than the competitors and being perceived as the cheapest provider (if the price is really the lowest or not) are both strategies to reach **cost advantage** through **price leadership**, i.e., to offer the lowest price for comparable products on the market. To achieve competitive advantages through **price leadership** cost leadership is a prerequisite. This means that a business unit must be able to produce a product at lower cost than its competitors. To achieve this, a cost benchmark can be conducted to detect reasonable alternatives for cost reduction.

To pursue **differentiation advantage** through **quality leadership** means to provide features that other providers don't and thus to differentiate oneself from other providers. Choosing this way to gain competitive advantage, it is essential to find out which features matter most to the customer and how customers aggregate these judgments to an overall evaluation. As, for customers, it is not possible to assess the quality of a product before buying it, e.g. taste or tenability, quality surrogates are advisable for “experience products” and “trust products“. Competitive advantages must be both effective and efficient. Effectivity refers to customer, whereas efficiency refers to the provider.

Four characteristics of a competitive advantage*

Significance

Competitive advantages can only be achieved if the customer finds the improvement made important. It is thus vital to find out what the priorities of the customers are and to make sure one works on something that is meaningful to the customer. Improving a special feature of a product or service without cognition of the customer's priorities

and needs can easily lead to misconceptions of what one needs to work on to provide a better, i.e. a more often asked for and bought product than the competitors.

□ **Perceptibility**

Similar to the characteristic 'significant', it is important that the superiority of a feature into which has been put effort is perceptible to the customer. Attention might have to be drawn to the additional value via advertising. Even better would it be to push on features which are perceptible at first sight as customers will be more willing to pay more if they know (or see) what has been improved or are more likely to choose a product which obviously has features that others do not.

□ **Profitability**

There is no use to offer products which outperform every other of its kind on the market if – at the end of the day – it does not also make sense financially for the provider. Profit must exceed costs to be financially profitable.

□ **Defensibility**

A competitive advantage must be defensible and thus sustainable to ensure that it not taken over by competitors. As competition is a principle of our economy comparative advantages are permanently challenged and to protect and strengthen advantages competitors must be impeded from imitating the innovation. This can be achieved through the methods of a) concealment, i.e., hindering the competitors to get insights in the details of the business concept and the evolvement of competitive advantages 4. deterrence, i.e. to convey the message, that you are unbeatable in a specific category (e.g. price leadership) c) blockade, i. e. to secure the exclusive access to raw materials etc.

Electronic commerce (e-commerce) provides consumers with the benefits of any time, any where transactions, with lower costs. By reducing these costs, however, e-commerce firms may also be reducing their customer retention since customers will have fewer "switching costs" to incur in changing their supplier (Porter 2001).

Switching costs contribute to competitive advantage by increasing the bargaining power of suppliers, increasing barriers to entry, decreasing the threat of substitutes and reducing the bargaining power of buyers. They increase competition for new customers and reduce competition for existing customers. Higher switching costs

Sharma lead to increases in customer retention, profitability and competitive advantage (Ghemawat 2002).

Despite the prevalence of switching costs in the strategy and IS literature, few studies have empirically measured these costs and their effect on customer retention. This study will analyze transaction data to explicitly measure this component of switching costs. Results from this study indicate that customers using bill pay services of banks have higher numbers of transactions (leading to higher switching costs) and higher customer retention than their online or offline banking counterparts. This can lead to a sustainable competitive advantage for the firm.

At the firm level, profitability is a necessary but not sufficient component of sustainable competitive advantage. This study finds that banks that operate primarily online are more profitable while also providing higher interest rates to customers. This is in contrast to their competitors who operate primarily offline or somewhere between the two on the continuum ("hybrid"). This is also contrary to models in the IT economics literature that suggested that "hybrid" banks should be most profitable.

The internet has fundamentally changed the world. Now you can talk to people without physically being in front of them. You can even buy stuff without visiting a store. eCommerce has changed the face of business. People are become lazier and they do not want to face horrible traffic when they want to purchase something. As a result, the eCommerce business is booming.

If you have an eCommerce business, you need to know your weapons. Since the digital world is excelling, more people are investing in it. Anything sells on the internet but you do need to make sure that you are promoting your brand or business in the right way. There is so much competition that a business with zero marketing will not make the cut. You have to be aggressive if you are in this industry. You have to be ahead of others. Even if you have a fancy eCommerce website design in which you poured a lot of money, it will not do any good if you cannot generate traffic for your website. For generating traffic, you need to know the ins and outs of the eCommerce industry and make a plan accordingly. You need to apply strategies for competitive advantages in eCommerce so that your business gets popular in no time.

Dr. Anjali Soni & Dr. Vaibhav Sharma
Strategies to move ahead of the crowd

You need to build strategies for if you want your business to thrive. Here are a few strategies which you can try;

1. Go niche rather than mass

You will find every type on people on this platform. You will find teenagers, moms and even grandparents. You will need musicians, politicians, makeup artists and so on. You might feel overwhelmed when you realize that the whole world is your audience. Instead of clawing at everyone, try to go for a specific target group. Your website should be about a specific group of people who share common interests. You can promote your business keeping only one target group in mind. If you want your business to be found by just artists, just focus on artists and not musicians.

2. Personalize your website

You cannot just build a website which is not appealing to your target group. You have to give your website such a look that your customers keep on coming back. Yes, while trying to make it extravagant do not make it difficult to use. Make sure that your website is easy to use. Make it simple yet elegant so that people can access it through laptops and mobile phones. There is software available today which will allow you to personalize product selections based on their previous purchases. You can make use of that software to show your customer that you care.

3. Prepare the right content

Content matters. Content can change your website overnight. You have to cater to your audience's needs. If you are focusing you on females, make sure you put up content which females are more likely to be interested in and not just some random article about cars. Using SEO friendly keywords is highly recommended. This is because when your customer types in that keyword on Google or Bing, your website will show up on the list.

4. Use different channels to showcase your brand

Do not just stick to your website. Make use of different channels. You need to promote on different channels like YouTube, Facebook and Twitter. Do not just stick

to one channel. You need to constantly remind your audience about your existence because you are not the only eCommerce selling online. Keep on appearing before them in forms of ads so that they are tempted to visit your website. Once they visit, about 20 percent of those visitors will turn into your customers.

5. Create new partnerships

Things work best when you have a partner. You will definitely benefit by forming strategic partnerships for your business. It does not matter how long you have been in the business. When you partner with another business, you can get direct access to their customer base. You get to tap into their target audience and convert those potential customers into loyal consumers. Yes, that is possible. If you are aware of Youtube, you might have seen that Youtubers constantly collaborate with other Youtubers. Why do you think they do that? They do that because by collaborating they get more people to view their video.

6. Interact with your customers

Your business might be virtual but your customers are real. You might be operating your whole business from a bunch of laptops but your customers are paying real money for it. It is important to hear from your customers. Listen to what they have to say. If they do not like something, improve on it. Give them what they desire or want to buy. Do not just keep on throwing make up and accessories because your target audience is women. If your niche target is stay home mothers, you might benefit from displaying furniture on your website.

7. Use social media as your weapon

Social media is the most powerful platform today. You will get to identify all your potential customers by peeking into their personal lives. You will get to see their interests and habits. You should invest a lot in social media. You can even direct people from social media directly to your website. Think of Facebook, if one of your posts is appealing to someone, he or she might share it. In this way, your post gets more generic view. Well, that's the beauty of social media!

Dr. Anjali Soni & Dr. Vaibhav Sharma

Business Strategy

Business strategies sometimes defined only as a firm's high-level plan for reaching specific business objectives. Strategic plans succeed when they lead to business growth, a strong competitive position, and strong financial performance. When the high-level strategy fails, however, the firm must either change its approach or prepare to go out of business.

The brief definition above is accurate but, for practical help, many businesspeople prefer instead a slightly longer explanation:

Business strategy is the firm's working plan for achieving its vision, prioritizing objectives, competing successfully, and optimizing financial performance with its business model.

Types of Business Strategy

1. Growth Strategy

A growth strategy entails introducing new products or adding new features to existing products. Sometimes, a small company may be forced to modify or increase its product line to keep up with competitors. Otherwise, customers may start using the new technology of a competitive company. For example, cell phone companies are constantly adding new features or discovering new technology. Cell phone companies that do not keep up with consumer demand will not stay in business very long.

A small company may also adopt a growth strategy by finding a new market for its products. Sometimes, companies find new markets for their products by accident. For example, a small consumer soap manufacturer may discover through marketing research that industrial workers like its products. Hence, in addition to selling soap in retail stores, the company could package the soap in larger containers for factory and plant workers.

2. Product Differentiation Strategy

Small companies will often use a product differentiation strategy when they have a competitive advantage, such as superior quality or service. For example, a small manufacturer of air purifiers may set themselves apart from competitors with their superior engineering design. Obviously, companies use a product differentiation strategy to set themselves apart from key competitors. However, a product differentiation strategy can also help a company build brand loyalty.

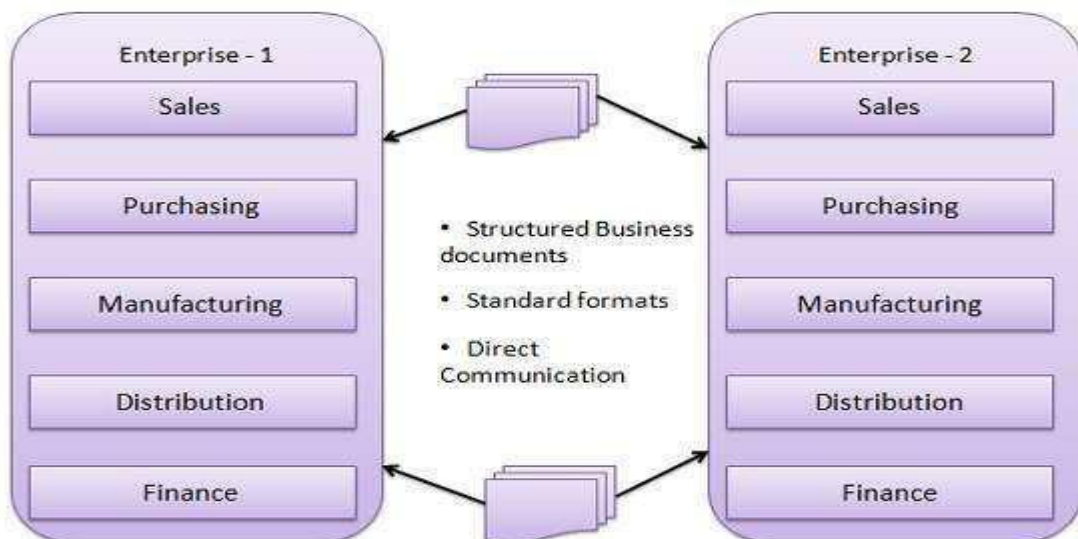
3. Price-Skimming Strategy

A price-skimming strategy involves charging high prices for a product, particularly during the introductory phase. A small company will use a price-skimming strategy to quickly recover its production and advertising costs. However, there must be something special about the product for consumers to pay the exorbitant price. An example would be the introduction of a new technology. A small company may be the first to introduce a new type of solar panel. Because the company is the only one selling the product, customers that really want the solar panels may pay the higher price. One disadvantage of a price-skimming is that it tends to attract competition relatively quickly. Enterprising individuals may see the profits the company is reaping and produce their own products, provided they have the technological know-how.

4. Acquisition Strategy

A small company with extra capital may use an acquisition strategy to gain a competitive advantage. An acquisition strategy entails purchasing another company, or one or more of its product lines. For example, a small grocery retailer on the east coast may purchase a comparable grocery chain in the Midwest to expand its operations.

E-Commerce - EDI



EDI stands for Electronic Data Exchange. EDI is an electronic way of transferring business documents in an organization internally, between its various departments or externally with suppliers, customers, or any subsidiaries. In EDI, paper documents are replaced with electronic documents such as word documents, spreadsheets, etc.

EDI Documents

Following are the few important documents used in EDI –

6. Invoices
7. Purchase orders
8. Shipping Requests
9. Acknowledgement
10. Business Correspondence letters
11. Financial information letters

Steps in an EDI System

Following are the steps in an EDI System.

5. A program generates a file that contains the processed document.
6. The document is converted into an agreed standard format.
7. The file containing the document is sent electronically on the network.
8. The trading partner receives the file.
9. An acknowledgement document is generated and sent to the originating organization.

Advantages of an EDI System

Following are the advantages of having an EDI system.

- Reduction in data entry errors. – Chances of errors are much less while using a computer for data entry.
- Shorter processing life cycle – Orders can be processed as soon as they are entered into the system. It reduces the processing time of the transfer documents.
- Electronic form of data – It is quite easy to transfer or share the data, as it is present in electronic format.
- Reduction in paperwork – As a lot of paper documents are replaced with electronic documents, there is a huge reduction in paperwork.
- Cost Effective – As time is saved and orders are processed very effectively, EDI proves to be highly cost effective.
- Standard Means of communication – EDI enforces standards on the content of data and its format which leads to clearer communication.

Ten Types of EDI

- **Traditional EDI:** Traditional EDI replaces the paper forms with almost strict one-to-one map-pings between parts of a paper form to fields of electronic forms called transaction sets. Traditional EDI covers two basic business areas:
 - Trade data interchange (TDI) encompasses transactions such as purchase orders, invoices, and acknowledgments.
 - Electronic funds transfer (EFT) is the automatic transfer of funds among banks and other organizations.
- **Old EDI:** refers to the current practice of automating the exchange of information pertinent to the business activity. Information that is generated by the business process of one computer is transferred electronically and affects a corresponding business process in another computer. Old EDI is also used to refer to the current EDI-standardization process (e.g., X12, EDIFACT) where tens of thousands of people in groups (or working committees) all around the world are attempting to define generic document interchanges (e.g., purchase orders) that allow every company to choose its own, unique, proprietary version (that is a subset of the original transaction set).
- **New EDI:** is really a refocus of the standardization process. With old EDI, the standardization is focused on the interchange structure, on the transaction set in

X12 or the message in EDIFACT. With new EDI the structure of the interchanges is determined by the programmer who writes the business application program, not by the lengthy standards process.

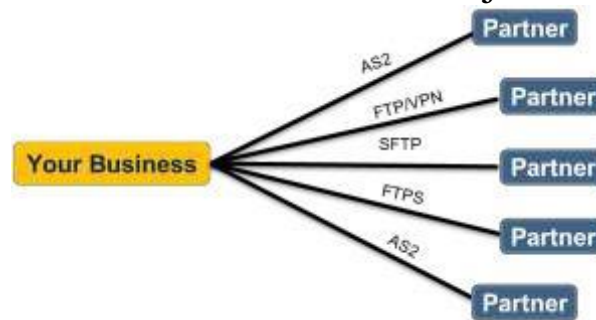
6. **Open EDI:** provides a framework where two potential trading partners can whip out an EDI structure for their potential partnership in the short time frame that it takes them to draw up and negotiate the legal contracts. The increased interest in open EDT is a result of dissatisfaction with traditional EDI. Open EDI is a business procedure that enables electronic commerce to occur between organizations where the interaction is of short duration. In essence, open EDI is the process of doing EDI without the upfront trading partner agreement that is currently signed by the trading partners before they commence trying to do business by EDI.

7. **Direct EDI – Enabling Businesses to Exchange EDI Documents via a Secure, Point-to-Point Connection over the Internet.** Direct EDI, which is sometimes called Point-to-Point EDI, has been used by companies for years. It was viewed historically as an alternative to a VAN. It establishes a single secure line between two business partners. In this approach, an organization must communicate with each business partner individually, which can mean managing hundreds or thousands of separate connections.

In the direct connection approach, you and your business partner connect directly via the Internet using the same communication method or protocol. This approach can become very complex and resource intensive if different business partners are using different communication protocols, which is the norm in most trading communities. Your system must be able to support all of these different, required protocols. This approach is most commonly used by large corporations that have business partners with whom they exchange a high volume of EDI documents, frequently.

If you choose the direct connection model, you will need to purchase a software package that enables you to use all the agreed upon protocols, such as AS2, SFTP, FTPS. Then you will need to agree with each of your partners on (1) which of these communication methods or protocols you will use and (2) the specific protocol settings to be used when exchanging your files of EDI documents. You should also consider a software solution that is future proofed to accommodate future requirements.

The graphic below illustrates the direct connection scenario.



This model can be very complex because of the wide variety of communication protocols that must be used and supported. Very few businesses today connect directly to all of their business partners.

- **EDI via VAN/EDI Network** – Shielding You From EDI Complexities via a Single Connection. The vast majority of EDI still occurs via EDI Networks, which in the days prior to the Internet were referred to as Value-Added Networks (VANs). The growth of flexible, low-cost approaches, such as Web EDI or EDI via AS2, has begun to change this situation but the EDI Network is still the preferred option due to the value-added services that these providers can deliver. Often companies look to implement a hybrid strategy in which different types of EDI are implemented as appropriate to the business, but the EDI Network remains the core to these installations.

The EDI Network is simply a secure network where EDI documents can be exchanged between business partners. An organization will be provided with a mailbox. Documents are sent and received from there and the organization checks the mailbox periodically to retrieve its documents. Most EDI Network Services providers offer an alerting service that informs the sender when messages have been sent successfully and also notifies the recipient that a new message is waiting.

In addition to secure communications, EDI Networks deliver:

- Full mailbox service. Messages are automatically routed to the correct mailbox. Business partners connect to the EDI Network to retrieve their messages
- Inspection and authentication of all EDI messages. The EDI Network will verify the identity of the business partner and validity of the message
- Full audit trail. All EDI messages are tracked and recorded
- Message notification. Business partners are notified when message enters their mailbox
- Ancillary services. EDI Network Service providers offer an extensive range of services including data backup and recovery, document mapping and compliance

The enduring appeal of EDI Networks is based upon the value-added services that the EDI Network Services provider delivers:

- Community and business partner enablement
- Back-office integration
- Management information
- Fully managed services (EDI Outsourcing)

□ AS2 – One of the Most Popular Methods for Transporting EDI Data Securely and Reliably over the Internet in a Point-to-Point Manner. AS2 is one of the most popular methods for transporting data, especially EDI data, securely and reliably over the Internet. It essentially involves two computers – a client and a server – connecting in a point-to-point manner via the web. AS2 creates an “envelope” for the EDI data, allowing it to be sent securely – using digital certificates and encryption – over the Internet. Walmart has become famous for EDI via AS2 and has helped drive its adoption within the retail sector.

□ **Web EDI**

Unlike EDI via AS2, Web EDI conducts EDI using a standard Internet browser. Organisations use different online forms to exchange information with business partners. Web EDI makes EDI easy and affordable for small- and medium-sized organisations and companies that have only occasional need to utilise such a service.

9. Mobile EDI

Users have commonly accessed EDI either by a private network such as Value Added Network or the Internet in order to send and receive EDI-related business documents. Mobile EDI has had limited adoption, in part due to security concerns with mobile devices across an EDI infrastructure, but mainly due to the mobile devices themselves. The quality and size of the screen of most devices has been relatively poor until recently. There is a growing industry for developing software applications or ‘apps’ for downloading onto mobile devices and it will be only be a matter of time before you will be able to download supply chain and EDI related apps from private or corporate app stores.

10. EDI Outsourcing

EDI Outsourcing (also referred to as Managed Services) is a fast-growing option that enables companies to use external resources to manage their EDI environment on a day-to-day basis. This is in part driven by companies wanting to integrate to back office business systems such as Enterprise Resource Planning

(ERP) platforms. Many companies do not have the internal resources to undertake this type of work so they outsource it instead.

Financial EDI or electronic funds transfer (EFT)

Financial EDI or electronic funds transfer (EFT) Financial EDI comprises the electronic transmission of payments and remittance information between a payer, payee, and their respective banks. This section examines the ways business-to-business payments are made today and describes the various methods for making financial EDI payments. Financial EDI allows businesses to replace the labor-intensive activities associated with issuing, mailing, and collecting checks through the banking system with automated initiation, transmission, and processing of payment instructions. Thus it eliminates the delays inherent in processing checks.

Types of Financial EDI: Traditionally, wholesale or business-to-business payment is accomplished using checks, EFT, and automated clearinghouses (ACH) for domestic and international funds transfer. ACH provides two basic services to industrial and financial corporate customers (including other banks):

(1) Fast transmission of information about their financial balances throughout the world.

□ The movement of money internationally at rapid speed for settlement of debit/credit balances. Banks have developed sophisticated cash management systems on the back of these services that essentially reduce the amount of money companies leave idly floating in low-earning accounts. Thus, three principal types of noncash payment instruments currently used for business-to-business payments: checks, electronic funds transfers, and automated clearinghouse (ACH) transfers.

EDI Standards

EDI standards are very broad and general because they have to meet the need of all businesses.

EDI share a common structure:-

- Transaction set is equivalent to business document, such as purchase order. Each transaction set is made up of data segments.
- Data segments are logical groups of data elements that together convey information, such as invoice terms, shipping information or purchase order line.
- Data elements are individual fields, such as purchase order number, quantity on order, unit price.

The need for EDI standards:-

EDI provides an electronic linkage between two trading partners. To send documents electronically to each other, firms must agree on a specific data format and technical environment.

EDI standards and initiatives:-

National standards:-

- **ODETTE:-** an EDI format developed for European motor industry. ODETTE stands for organization for data exchange by tele transmission in Europe.
- **TRADACOMS:-** it is UK national standard, which is developed by ANA (Article number association) in 1982.
- **ANSI ASC X12 (American national standards – X12)** – X12 is a standard that defines many different types of documents, student loan applications, injury and illness supports and shipment and billing notices.

International standards –

- **EDIFACT – (Electronic data interchange for administration, commerce and transport)** was developed during 1990's with a subset of EANCOM, which is the most widely used dialect of EDIFACT in international retail and distribution sector.

□ **UN/EDIFACT** – (united Nations/electronic data interchange for administration commerce and transport) is an international set of EDI standards that are published by United Nations trade data interchange (UNIDID).

Implementing EDI

Pugsley has defined six steps to successfully implement EDI technology in an organization:

□ **Complete understanding of EDI** : The depth of knowledge a company acquires on EDI depends on the internal efforts spent. If no external consultants are hired then the level of knowledge should be high. One method to gain knowledge is to join one of the groups developing standards. (e.g. EDI Council of Australia)

□ **Agreed on standards with business partners:** After finding a suitable business partner, agreements should be made concerning standards, transactions to be exchanged, message syntax, file transfer protocol etc.

Modifying existing systems: The host computer applications should be modified so that EDI information is incorporated or integrated directly into the applications. Good EDI software should provide an application interface to many different applications.

□ **Translate data:** Various translation modules are required to translate transactions into EDI messages according to the EDI standard being used. The translation is required of the data into the EDI format as well as translation of data from an EDI package into a format compatible with the in-house application.

□ **Prepare communications:** A network connection to various trading partners is required via either a Value Added Network (VAN) or direct connection.

□ **Management and audit of the whole process:** Consistent management and auditing of the entire process must be established and maintained. The tasks include archiving transactions, inspecting error logs and ensuring security of the system.

Direct computer-to-computer communications with a trading partner requires that both firms use similar communication protocols; have the same transmission speed; have telephone lines available at the same time and have compatible computer

hardware. If these conditions are not met, communication becomes difficult, if not impossible. A Value- Added Network (VAN) can solve these problems by providing services that enhance the basic telecommunication network.

Security & Privacy issues in EDI

For the EDI to be widely accepted in commercial trading, users must be assured that the electronic system provides them with the equivalent protection against mistakes, misinterpretation and fraudulent activities that is offered by the paper and signature system to which they are accustomed. The following security issues related to EDI are discussed in view of the security offered in

the present day systems.

3.1 Password Guessing Attacks

Most of the present day systems rely on passwords to gain access but, passwords are easy to guess and this makes the system vulnerable to password guessing attacks. Users are very poor in choosing good passwords. An intruder can capture a quantity X that is derived from a password in a known

way. Then the intruder can use an arbitrary amount of computing power to guess passwords, convert them in a known way and see if X is produced. The best source of selecting such passwords is the dictionary and hence it is also called as dictionary attack, e.g. In Kerberos Authentication System, when the user requests the ticket granting ticket $\{Tc, tgs\}$, the answer is returned encrypted with Kc , a key derived by a publicly-known algorithm from the user's password. A guess at the user's password can be confirmed by calculating Kc and using it to decrypt the recorded answer. An intruder, who has recorded many such login dialogs, has good odds of finding several new passwords.

3.2 Cross Vulnerability

Generally EDI systems work on a point to point basis or have a limited number of trading partners. The security and control features incorporated in the system are as strong as the weakest link in the EDI chain. A potential exposure or cross-vulnerability due to technical limitation in one EDI system can compromise the integrity of the other dependent EDI systems. Cross-vulnerabilities

exist between systems that rely on common values for user identification and authentication, such as IDs and passwords.

3.3 Multiple Standards

Trading partners usually work on a variety of standards such as UN/EDIFACT, ANSI X12, ODETTE etc. Problems arise when the two trading partners adhere to different standards. The security features offered in a particular standard may not be comparable to the other standard.

3.4 Authentication

The extensive use of open networks and distributed systems poses serious threats to the security of end-to-end communications and network components themselves. A necessary foundation for securing a network is the ability to reliably authenticate communication partners and other network entities. Authentication is the most important of the security services, because all other security services depend upon it. Authentication relates to a scenario where a claimant has presented a principal's identity and claims to be that principal. Authentication enables a verifier to verify the identity of the principal.

3.5 Non-Repudiation

In EDI, non-repudiation services provide a communication user with protection against another user who later denies that some communication exchange took place. While these services do not prevent a user from repudiating another user's claim that something occurred, they provide evidence to resolve any such disagreement. In general, the evidence must be proved convincingly to the

third party arbitrator. In data networking environments, repudiation scenarios can be separated into two distinct cases:

- Repudiation of origin:** There is disagreement as to whether a particular party originated a particular data item.
- Repudiation of delivery:** There is disagreement as to whether a particular item was delivered to a receiving party.

3.6 Disclosure of Information

With the introduction and use of EDI, additional security risks arise apart from those which exist for the conventional electronic information systems. The computers of a trading partner can initiate transactions inside another partner's accounting systems which are processed in a totally automatic environment. By its very nature, EDI requires that the system be continuously open to receive incoming transactions. This means that the system and the associated data are exposed continuously to attack and possible compromise. An EDI trading agreement is done for the exchange of data among geographically dispersed participants. Consequently this mechanism is exposed to all threats to which the telecommunication system is subjected. Therefore all data protection requirements for a distributed telecommunication process are applicable to an EDI trading agreements.

3.7 Lack of Hard Copy

With EDI, the information concerning predetermined subject matter that could be conveyed on paper is transferred as a set of electronic messages in standardized formats. The information may remain in electronic form and may never be printed. The lack of hard copy records and manual signatures creates new risks that must be carefully considered in any EDI implementation. As a result, original hard-copy evidence of obligation or commitment by the trading partners may not be available. Instead, electronic records must be used. Specific activities must be undertaken to assure that EDI messages, such as electronic records, are authentic, properly authorized and completely and accurately retained with audit trails for purposes of accountability.

3.8 Other Issues

In order to accommodate the increased need of the user community, as the complexity of an EDI system grows, the security services also need to be upgraded. In addition, there are various network security threats that need to be countered in an EDI system. They include eavesdropping, denial of service, packet replay and packet modification. Eavesdropping allows an intruder to make a complete transcript of network activity. As a result, the intruder can obtain sensitive information, such as passwords, data, and procedures for performing functions. An intruder can gain information by wire tapping, eavesdropping by radio or eavesdropping via auxiliary ports on terminals. In today's competitive world, disclosure of information about a company may prove fatal for the future of the company.

Denial of Service

Multi-user, multi-tasking operating systems are subject to denial of service attacks where one user can render the system unusable for legitimate users by damaging or destroying resources so that they cannot be used. They may be caused accidentally or deliberately. It will help to prevent intentional denial of service attacks if precautions are taken to prevent unintentional denial of service attacks.

Systems on a network are vulnerable to overload and destructive attacks as well as other types of intentional or unintentional denial of service attacks. Three common forms of network denial of service attacks are service overloading, message flooding and signal grounding. In service overloading, the intruder generates spurious messages to increase the traffic in the network thereby degrading the service to the user. In message flooding, the intruder generates confusing routing messages or simply floods the network with enough garbage data to saturate the links. This may make the network inoperative. An active intruder can disrupt the service or ground the signals by intercepting or destroying messages for a particular user. It is important for system administrators, to protect against denial of service threats in an EDI system without denying access to legitimate users.

EDI Format

An EDI document is comprised of data elements, segments and envelopes that are formatted according to the rules of a particular EDI standard.

When you create an EDI document, such as a purchase order, you must adhere to the strict formatting rules of the standard you are using. These rules define exactly where and how each piece of information in the document will be found. That way, when the EDI translator on the receiving computer reads an incoming EDI purchase order, it will immediately understand where to find the buyer's company name, the purchase order number, the items being ordered, the price for each item, etc. Then, that data will be fed into the receiver's order entry system in the proper internal format without requiring any manual order entry.

The graphic below shows a sample purchase order in printed form and how it would look once it's translated into the ANSI and EDIFACT EDI formats.

ANSI and EDIFACT Purchase Order

In the EDI language, a single business document, such as a purchase order, invoice or advance ship notice, is called a “transaction set” or “message.” And, a transaction set is comprised of data elements, segments and envelopes.

The data elements in an EDI Transaction Set are the individual items of information within the document.

For example, within many documents, such as the purchase order and invoice, you will find data elements such as city, state, country, item number, quantity and price.

Each data element in a transaction set is defined in the EDI Standard by the type of data it represents. For example, it would be important to distinguish numeric data from text data or calendar dates. The data element definition will describe:

- Data type of numeric, alphanumeric, date or time
- Minimum and maximum length
- Code values, if applicable, that must be observed with a particular type of data. For example, if the data element is unit cost, you would use a currency code element as well to allow you to indicate what currency (e.g., US dollars or euros) is being used in the unit cost field

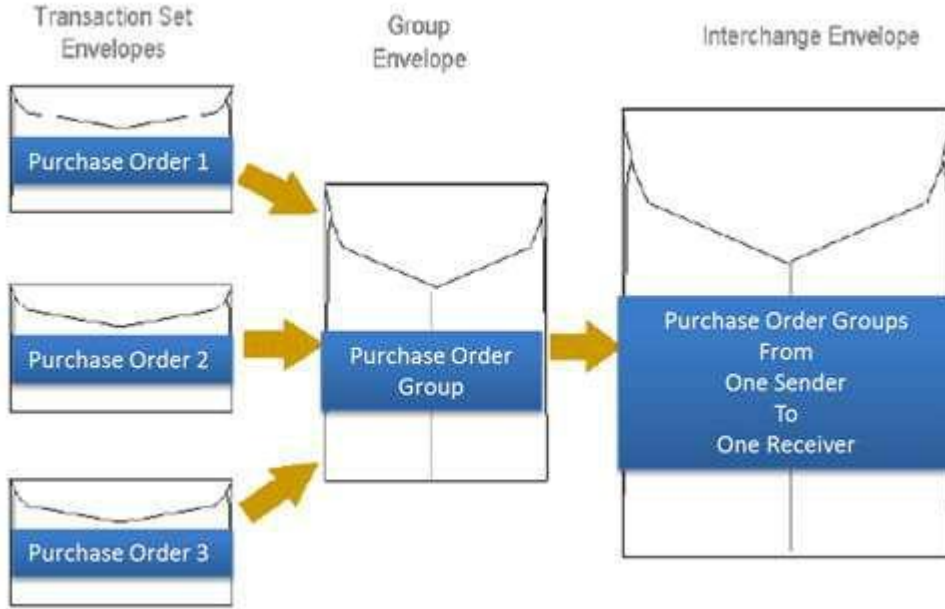
Elements are combined into segments.

EDI document transmission uses a system of three “envelopes” to house your transaction sets – Message envelope, Group envelope and Interchange envelope.

Just as paper business documents are sent in envelopes and it’s possible to mail many documents in a single envelope, EDI documents are exchanged using several envelopes.

7. Each transaction set is placed in its individual envelope
8. A group of transaction sets – e.g., a group of purchase orders – is placed in a group envelope. (The group envelope is mandatory in ANSI and optional in EDIFACT.)
9. All group envelopes being sent from one sender to one receiver are placed in an Interchange envelope

See the diagram below:



An envelope is formed by a pair of segments that define the beginning and end of the appropriate section. Using the EDIFACT standard as the example, the Transaction Set Envelope uses the UNH and UNT segments, the Group Envelope uses the UNG and UNE segments and the Interchange Envelope uses the UNA/UNB and UNZ segments. In each case, the “S” indicates the “start” of the envelope and the “E” indicates the “end” of the envelope. The diagram below illustrates the three levels of envelopes that would surround a single EDI purchase order.



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Electronic Catalogue

An electronic catalogue is an online publication, that is to say a graphic interface - generally an html page in which the products and services offered by a company are showed. Digital catalogues can store great quantities of items, which can be organized and classified into different categories for users to search in a more rapid and effective way.

There are different types of catalogues according to their functions. The simplest catalogues show only descriptions of the products and price lists, and do not enjoy a purchase and payment online method. Others have shopping carts, order forms and offer payment methods. The amount of functions an online catalogue has will determine the price of its development.

The main aims of e-catalogues are to advertise, to sell, to distribute, and to draw the customer's attention. They are the digital representation of a company and a powerful e-commerce tool. In the e-commerce world we find business-consumer transactions and business to business transactions. In this way, e-catalogues are excellent communication tools between a company and its client, suppliers or other companies. For all these reasons, catalogues became a marketing tool used everyday by different types of organizations.

There are different types of electronic catalogues according to the way they appear on the Internet. Retailer's e-catalogues are generally independent pages on the Internet, and their aim is to promote and sell products and services. But, big companies generally include their e-catalogues on their general websites. Generally, they are not used as tools for selling but as means to promote products and services and to draw the customer's attention. There are also malls, that is to say e-catalogue groups – ebay.com for example. In this case, an Internet provider gathers different companies' digital publications, showing a great number of offers made by the users.

Advantages

E-catalogues bring many advantages to different companies. Here we show them to you for you to consider catalogues as a promotion tool for your company:

1. Low costs:

Unlike conventional catalogues, these e-catalogues allow you to save money, since you will not need to spend on paper and printing. For this reason, they are perfect for

small and medium-sized companies, which will have, with them, the possibility of getting into the world market.

2. Market expansion

Thanks to the possibilities that the Internet provides, people around the world will be able to gain access to your online catalogues any time. With these catalogues, different companies gain new customers, providing a faster and more comfortable service to consumers. By using these catalogues, users will be able to search for products and services, place orders, make payments by credit cards or payment portals, and clear up their doubts. In this way, sales increase considerably.

3. Interaction

Unlike printed catalogues, digital catalogues allow a direct relationship between the company and its clients. With an e-catalogue, a company can inform about its products and services to its clients, who will contact the company's representatives to clear up their doubts, to make comments or suggestions. Because of this, company will be permanently updated about the fluctuating necessities of their target.

4. Information for customers

With these catalogues, each company will be able to provide information on the products and services it offers and links to other websites for customer to get complementary information on the subjects the company's website leads with.

5. Regular update

E-catalogues content is stored on a server to which navigators from all over the world have access. They can be updated from the server in a regular, fast and easy way. What is more, the changes made are immediately available for customers to see. In this way, catalogues show the latest about new products, prices, points of sale, new technology incorporations, etc.

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Sharma

Digital library

A digital library is a collection of documents in organized electronic form, available on the Internet or on CD-ROM (compact-disk read-only memory) disks. Depending on the specific library, a user may be able to access magazine articles, books, papers, images, sound files, and videos.

On the Internet, the use of a digital library is enhanced by a broadband connection such as cable modem or DSL. Dial-up connections can be used to access plain-text documents and some documents containing images, but for complex files and those with animated video content, a downstream data speed of at least several hundred kilobits per second (Kbps) can make the user's experience less tedious, as well as more informative. Internet-based digital libraries can be updated on a daily basis. This is one of the greatest assets of this emerging technology.

On CD-ROM, the amount of data is limited to several hundred megabytes (MB) per disk, but access is generally much faster than on an Internet connection. Several CD-ROMs can be combined in a set, and because the disks are small, a large library can be accommodated in a reasonable physical space. The main limitation of CD-ROM is the fact that updating cannot be done as frequently as on the Internet. In addition, producing and distributing CD-ROMs involves overhead costs that are largely nonexistent in Internet-based libraries.

Some institutions have begun the task of converting classic books to electronic format for distribution on the Internet. Some files can be viewed directly in HTML format; others can be downloaded in PDF format and printed. Some publishers keep electronic files of books and produce them one unit at a time in printed and bound form on demand.

Electronic distribution of intellectual and artistic property has authors, agents, and publishers concerned about the possibility of copyright infringement. It is much easier to copy a CD-ROM, or to download an electronic book and make unauthorized copies of it, than it is to reproduce bound volumes and distribute them illegitimately. Fundamental changes in copyright law - and/or changes in the way in which the laws are enforced - are likely to occur as digital libraries expand and their use becomes more widespread.